WHAT IS CLAIMED IS:

1. A method of incorporating a UV inhibitor into a polyester resin, the method comprising:

a) forming a reaction mixture substantially free of a titanium containing ester exchange catalyst compound and comprising:

a diol,

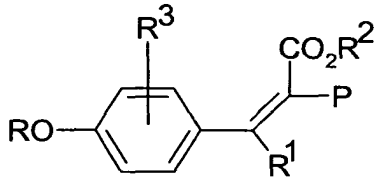
a diacid component selected from the group consisting of dicarboxylic acids, dicarboxylic acid derivatives, and mixtures thereof,

an antimony containing compound in an amount of less than 0.1% of the total weight of the reaction mixture,

a phosphorus containing compound present in an amount of less than about 0.1% of the total weight of the reaction mixture,

a metal containing compound selected from the group consisting of zinc containing compounds, manganese containing compounds, present in an amount from about 10 ppm to about 300 ppm, and

a UV inhibitor having formula I:



I

wherein,

R is hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, cycloalkyl, substituted cycloalkyl, or alkenyl;

R^1 is hydrogen, or alkyl, aryl, or cycloalkyl, all of which may be substituted;

R^2 is hydrogen or any radical which does not interfere with condensation with the polyester;

R^3 is hydrogen or 1-3 substituents selected from alkyl, substituted alkyl, alkoxy, substituted alkoxy, and halogen;

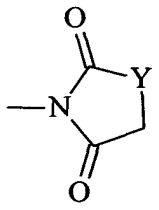
P is cyano or a group selected from carbamyl, aryl, alkylsulfonyl, arylsulfonyl, heterocyclic, alkanoyl or aroyl, all of which groups may be substituted; and

b) polymerizing the reaction mixture in a polycondensation reaction system, the polycondensation reaction system having a first reaction chamber, a last reaction chamber, and one or more intermediate reaction chambers between the first reaction chamber and the last reaction chamber, wherein the reaction system is operated in series such that the reaction mixture is progressively polymerized in the first reaction chamber, the one or more intermediate reactions, and the last reaction chamber.

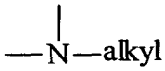
2. The method of claim 1 wherein:

R^2 is hydrogen, alkyl, aralkyl, cycloalkyl, cyanoalkyl, aryl, alkoxyalkyl or hydroxyalkyl;

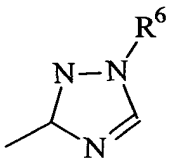
R is selected from hydrogen; cycloalkyl; cycloalkyl substituted with one or two of alkyl, alkoxy or halogen; phenyl; phenyl substituted with 1-3 of alkyl, alkoxy, halogen, alkanoylamino, or cyano; straight or branched lower alkenyl; straight or branched alkyl and such alkyl substituted with 1-3 of the following: halogen; cyano; succinimido; glutarimido; phthalimido; phthalimidino; 2-pyrrolidono; cyclohexyl; phenyl; phenyl substituted with alkyl, alkoxy, halogen, cyano, or alkylsulfamoyl; vinylsulfonyl; acrylamido; sulfamyl; benzoylsulfonicimido; alkylsulfonamido; phenylsulfonamido; alkenylcarbonylamino; groups of the formula



wherein Y is -NH-,



-O-, -S-, or -CH_2O-; -S-R^4 ; $SO_2CH_2CH_2SR^4$; wherein R^4 is alkyl, phenyl, phenyl substituted with halogen, alkyl, alkoxy, alkanoylamino, or cyano, pyridyl, pyrimidinyl, benzoxazolyl, benzimidazolyl, benzothiazolyl, or a radical of the formulae



-$NHXR^5$; -$CONR^6R^6$; and -SO2NR^6R^6; wherein R^6 is selected from H, aryl, alkyl, and alkyl substituted with halogen, phenoxy, aryl, -CN, cycloalkyl, alkylsulfonyl, alkylthio, or alkoxy; X is -CO-, -COO-, or -SO_2 -; R^5 is selected from alkyl and alkyl substituted with halogen, phenoxy, aryl, cyano, cycloalkyl, alkylsulfonyl, alkylthio, and alkoxy; and when X is -CO-, R^5 also can be hydrogen, amino, alkenyl, alkylamino, dialkylamino, arylamino, aryl, or furyl; alkoxy; alkoxy substituted with cyano or alkoxy; phenoxy; or phenoxy substituted with 1-3 of alkyl, alkoxy, or halogen; and

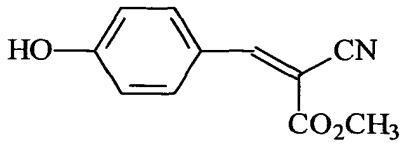
P is cyano, carbamyl, N-alkylcarbamyl, N-alkyl-N-arylcarbamyl, N,N-dialkylcarbamyl, N,N-alkyl-arylcarbamyl, N-arylcarbamyl, N-cyclohexylcarbamyl, aryl, 2-benzoxazolyl, 2-benzothiazolyl, 2-benzimidazolyl, 1,3,4-thiadiazol-2-yl, 1,3,4-oxadiazol-2-yl, alkylsulfonyl, arylsulfonyl, alkanoyl or aroyl.

3. The method of claim 1 wherein R^1 is hydrogen.

4. The method of claim 1 wherein P is cyano.

5. The method of claim 1 wherein R^1 is hydrogen and P is cyano.

6. The method of claim 1 wherein the UV inhibitor is a compound having formula II:



7. The method of claim 1 wherein the reaction mixture contains from 0.0 to 2 ppm titanium metal.

8. The method of claim 1 wherein the polymerization with each reaction chamber having a reaction pressure such that the reaction pressure in the first chamber is from about 20 to 50 psi and the reaction pressure in the last reaction chamber is from about 0.1 mm Hg to about 2 mm Hg with the reaction pressure in each of the one or more intermediate reactor being between 50 psi and 0.1 mm Hg.

9. The method of claim 1 wherein the reaction mixture contains 0.0 ppm titanium metal.

10. The method of claim 1 wherein the diol component is selected from the group consisting of ethylene glycol, 1,4-cyclohexanedimethanol, 1,2-propanediol, 1,3-propanediol, 1,4-butanediol, 2,2-dimethyl-1,3-propanediol, 1,6-hexanediol, 1,2-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cyclohexanedimethanol, 1,3-cyclohexanedimethanol, X,8-bis(hydroxymethyl)tricyclo-[5.2.1.0]-decane

wherein X represents 3, 4, or 5; diols containing one or more oxygen atoms in a chain and mixtures thereof.

11. The method of claim 1 wherein the diacid component comprises a component selected from the groups consisting of terephthalic acid, isophthalic acid, naphthalene dicarboxylic acid, 1,4-cyclohexanedicarboxylic acid, 1,3-cyclohexanedicarboxylic acid, succinic acid, glutaric acid, adipic acid, sebacic acid, 1,12-dodecanedioic acid, and esters thereof; and mixtures thereof.

12. The method of claim 11 wherein the diacid component comprises dimethyl terephthalate.

13. The method of claim 11 wherein the molar ratio of the diol component to the diacid component is from about 0.5 to about 4.

14. The method of claim 1 wherein the reaction mixture further comprises a component containing a metal selected from the group consisting of zinc, manganese, and mixtures thereof, an antimony containing component, and a phosphorus containing component.

15. The method of claim 14 wherein the metal containing component is zinc acetate or manganese acetate, the antimony containing component is antimony trioxide, and the phosphorus containing component is phosphoric acid.

16. The method of claim 15 wherein the metal containing component is zinc acetate present in an amount from about 10 to about 200 ppm.

17. The method of claim 15 wherein the antimony trioxide is present in an amount from about 20 to about 500 ppm.

18. The method of claim 15 wherein the phosphoric acid is present in an amount from about 5 to about 200 ppm.

19. The method of claim 14 wherein one or more components selected from the group consisting of an iron containing compound, a toner, a cobalt containing compound, and mixtures thereof.

20. A method of incorporating a UV inhibitor into a polyester resin, the method comprising:

a) forming a reaction mixture comprising:

a diol,

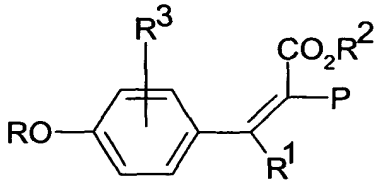
a diacid component selected from the group consisting of dicarboxylic acids, dicarboxylic acid derivatives, and mixtures thereof in a polycondensation reaction system comprising a series of reaction chambers designatable as reaction chamber RC^i having a first reaction chamber designatable as reaction chamber RC^1 , a last reaction chamber designatable as reaction chamber RC^k , and one or more intermediate reaction chambers

b) successively polymerizing the reaction mixture in the multichamber polymerization system wherein the reaction system is operated in series such that a reaction product designatable as product P^i from reaction chamber R^i is transportable to reaction chamber RC^{i+1} by a conduit designatable as conduit C^i connecting reaction chamber RC^i to a reaction chamber RC^{i+1}; and

c) adding the UV inhibitor to reaction product P^i as it is transported from reaction chamber RC^i to reaction chamber RC^{i+1},

wherein i and k are integer and k is the total number of reaction chambers.

21. The method of claim 20 wherein the UV inhibitor has formula I:



I

wherein,

R is hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, cycloalkyl, substituted cycloalkyl, or alkenyl;

R^1 is hydrogen, or alkyl, aryl, or cycloalkyl, all of which may be substituted;

R^2 is hydrogen or any radical which does not interfere with condensation with the polyester;

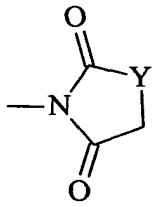
R^3 is hydrogen or 1-3 substituents selected from alkyl, substituted alkyl, alkoxy, substituted alkoxy, and halogen; and

P is cyano or a group selected from carbamyl, aryl, alkylsulfonyl, arylsulfonyl, heterocyclic, alkanoyl or aroyl, all of which groups may be substituted.

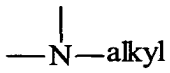
22. The method of claim 21 wherein:

R^2 is hydrogen, alkyl, aralkyl, cycloalkyl, cyanoalkyl, aryl, alkoxyalkyl or hydroxyalkyl;

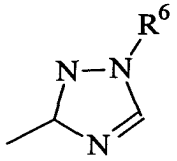
R is selected from hydrogen; cycloalkyl; cycloalkyl substituted with one or two of alkyl, alkoxy or halogen; phenyl; phenyl substituted with 1-3 of alkyl, alkoxy, halogen, alkanoylamino, or cyano; straight or branched lower alkenyl; straight or branched alkyl and such alkyl substituted with 1-3 of the following: halogen; cyano; succinimido; glutarimido; phthalimido; phthalimidino; 2-pyrrolidono; cyclohexyl; phenyl; phenyl substituted with alkyl, alkoxy, halogen, cyano, or alkylsulfamoyl; vinylsulfonyl; acrylamido; sulfamyl; benzoylsulfonicimido; alkylsulfonamido; phenylsulfonamido; alkenylcarbonylamino; groups of the formula



wherein Y is -NH-,



-O-, -S-, or -CH_2O-; -S-R_4; $SO2CH_2CH_2SR^4$; wherein R^4 is alkyl, phenyl, phenyl substituted with halogen, alkyl, alkoxy, alkanoylamino, or cyano, pyridyl, pyrimidinyl, benzoxazolyl, benzimidazolyl, benzothiazolyl, or a radical of the formulae



-$NHXR^5$; -$CONR^6R^6$; and -$SO_2NR^6R^6$; wherein R^6 is selected from H, aryl, alkyl, and alkyl substituted with halogen, phenoxy, aryl, -CN, cycloalkyl, alkylsulfonyl, alkylthio, or alkoxy; X is -CO-, -COO-, or -SO_2 -; R^5 is selected from alkyl and alkyl substituted with halogen, phenoxy, aryl, cyano, cycloalkyl, alkylsulfonyl, alkylthio, and alkoxy; and when X is -CO-, R^5 also can be hydrogen, amino, alkenyl, alkylamino, dialkylamino, arylamino, aryl, or furyl; alkoxy; alkoxy substituted with cyano or alkoxy; phenoxy; or phenoxy substituted with 1-3 of alkyl, alkoxy, or halogen; and

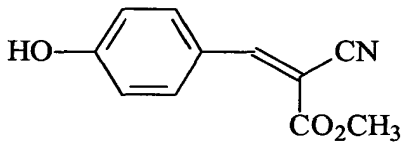
P is cyano, carbamyl, N-alkylcarbamyl, N-alkyl-N-arylcarbamyl, N,N-dialkylcarbamyl, N,N-alkyl-arylcarbamyl, N-arylcarbamyl, N-cyclohexylcarbamyl, aryl, 2-benzoxazolyl, 2-benzothiazolyl, 2-benzimidazolyl, 1,3,4-thiadiazol-2-yl, 1,3,4-oxadiazol-2-yl, alkylsulfonyl, arylsulfonyl, alkanoyl or aroyl.

23. The method of claim 20 wherein R^1 is hydrogen.

24. The method of claim 20 wherein P is cyano.

25. The method of claim 20 wherein R^1 is hydrogen and P is cyano.

26. The method of claim 20 wherein the UV inhibitor is a compound having formula II:



27. The method of claim 20 wherein the UV inhibitor added to reaction product P^{k-2} while reaction product P^{k-2} is transported between reaction chamber RC^{k-2} and reaction chamber RC^{k-1}.

28. The method of claim 20 wherein the reaction mixture contains from 0.0 to 2 ppm titanium containing compounds.

29. The method of claim 20 wherein the diol component is selected from the group consisting of ethylene glycol, 1,4-cyclohexanedimethanol, 1,2-propanediol, 1,3-propanediol, 1,4-butanediol, 2,2-dimethyl-1,3-propanediol, 1,6-hexanediol, 1,2-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cyclohexanedimethanol, 1,3-cyclohexanedimethanol, X,8-bis(hydroxymethyl)tricyclo-[5.2.1.0]-decane wherein X represents 3, 4, or 5; diols containing one or more oxygen atoms in the chain and mixtures thereof.

30. The method of claim 20 wherein the diacid component comprises a component selected from the groups consisting of terephthalic acid, isophthalic acid, naphthalene dicarboxylic acid, 1,4-cyclohexanedicarboxylic acid, 1,3-cyclohexanedicarboxylic acid, succinic acid, glutaric acid, adipic acid, sebacic acid, 1,12-dodecanedioic acid, and esters thereof, and mixtures thereof.

31. The method of claim 30 wherein the diacid component comprises dimethyl terephthalate.

32. The method of claim 30 wherein the molar ratio of the diol component to the diacid component is from about 0.5 to about 4.

33. The method of claim 20 wherein the reaction mixture further comprises a component containing a metal selected from the group consisting of zinc, manganese, and mixtures thereof, an antimony containing component, and a phosphorus containing component.

34. The method of claim 33 wherein the metal containing component is zinc acetate or manganese acetate, the antimony containing component is antimony trioxide, and the phosphorus containing component is phosphoric acid.

35. The method of claim 34 wherein the metal containing component is zinc acetate present in an amount from about 10 to about 200 ppm.

36. The method of claim 34 wherein the antimony trioxide is present in an amount from about 20 to about 500 ppm.

37. The method of claim 33 wherein the phosphoric acid is present in an amount from about 5 to about 200 ppm.

38. The method of claim 33 wherein one or more components selected from the group consisting an iron containing compound, a toner, a cobalt containing compound, and mixtures thereof.

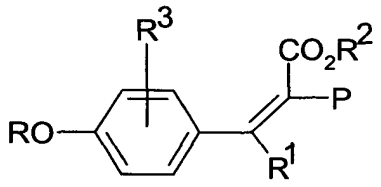
39. The method of claim 20, wherein the reaction mixture contains 0.0 ppm titanium metal.

40. A polyester composition comprising:

diacid residues;

diol residues;

UV inhibitor residues from a UV inhibitor having formula I:



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antimony atoms present in an amount of less than 0.1%;

phosphorus atoms present in an amount of less than about 0.1%;

metal atoms selected from the group consisting of zinc, manganese, and mixtures thereof in an amount from about 10 ppm to about 300 ppm; and

titanium atoms present in an amount of 0.0 to 5 ppm,

wherein,

R is hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, cycloalkyl, substituted cycloalkyl, or alkenyl;

R^1 is hydrogen, or alkyl, aryl, or cycloalkyl, all of which may be substituted;

R^2 is hydrogen or any radical which does not interfere with condensation with the polyester;

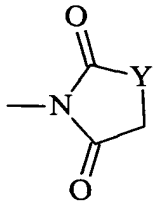
R^3 is hydrogen or 1-3 substituents selected from alkyl, substituted alkyl, alkoxy, substituted alkoxy, and halogen; and

P is cyano or a group selected from carbamyl, aryl, alkylsulfonyl, arylsulfonyl, heterocyclic, alkanoyl or aroyl, all of which groups may be substituted.

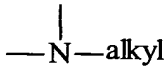
41. The polyester composition of claim 40 wherein:

R^2 is hydrogen, alkyl, aralkyl, cycloalkyl, cyanoalkyl, aryl, alkoxyalkyl or hydroxyalkyl;

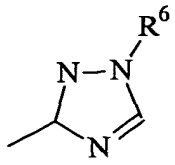
R is selected from hydrogen; cycloalkyl; cycloalkyl substituted with one or two of alkyl, alkoxy or halogen; phenyl; phenyl substituted with 1-3 of alkyl, alkoxy, halogen, alkanoylamino, or cyano; straight or branched lower alkenyl; straight or branched alkyl and such alkyl substituted with 1-3 of the following: halogen; cyano; succinimido; glutarimido; phthalimido; phthalimidino; 2-pyrrolidono; cyclohexyl; phenyl; phenyl substituted with alkyl, alkoxy, halogen, cyano, or alkylsulfamoyl; vinylsulfonyl; acrylamido; sulfamyl; benzoylsulfonicimido; alkylsulfonamido; phenylsulfonamido; alkenylcarbonylamino; groups of the formula



wherein Y is -NH-,



-O-, -S-, or -CH_2 O-; -S-R^4; $SO_2CH_2CH_2SR^4$; wherein R^4 is alkyl, phenyl, phenyl substituted with halogen, alkyl, alkoxy, alkanoylamino, or cyano, pyridyl, pyrimidinyl, benzoxazolyl, benzimidazolyl, benzothiazolyl, or a radical of the formulae



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-NHXR^5; -CONR^{6}R^6; and -SO$_2$NR^{6}R^6; wherein R^6 is selected from H, aryl, alkyl, and alkyl substituted with halogen, phenoxy, aryl, -CN, cycloalkyl, alkylsulfonyl, alkylthio, or alkoxy; X is -CO-, -COO-, or -SO$_2$ -; R^5 is selected from alkyl and
10 alkyl substituted with halogen, phenoxy, aryl, cyano, cycloalkyl, alkylsulfonyl, alkylthio, and alkoxy; and when X is -CO-, R^5 also can be hydrogen, amino, alkenyl, alkylamino, dialkylamino, arylamino, aryl, or furyl; alkoxy; alkoxy substituted with cyano or alkoxy; phenoxy; or phenoxy substituted with 1-3 of alkyl, alkoxy, or halogen; and

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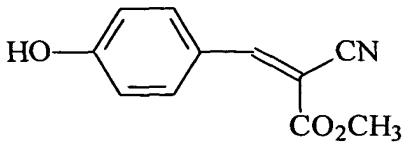
P is cyano, carbamyl, N-alkylcarbamyl, N-alkyl-N-arylcarbamyl, N,N-dialkylcarbamyl, N,N-alkyl-arylcarbamyl, N-arylcarbamyl, N-cyclohexylcarbamyl, aryl, 2-benzoxazolyl, 2-benzothiazolyl, 2-benzimidazolyl, 1,3,4-thiadiazol-2-yl, 1,3,4-oxadiazol-2-yl, alkylsulfonyl, arylsulfonyl, alkanoyl or
20 aroyl.

42. The polyester composition of claim 40 wherein R^1 is hydrogen.

25 43. The polyester composition of claim 40 wherein P is cyano.

44. The polyester composition of claim 40 wherein R^1 is hydrogen and P is cyano.

30 45. The polyester composition of claim 40 wherein the UV inhibitor is a compound having formula II:



II

46. The polyester composition of claim 40 wherein the diacid residue is selected from the group consisting of dicarboxylic acid residues, dicarboxylic acid derivative residues, and mixtures thereof.

47. The polyester composition of claim 40 wherein the diacid residue is a dicarboxylic acid ester residue.

48. The polyester composition of claim 46 wherein the diacid residue is a dimethyl terephthalate residue.

49. The polyester composition of claim 40 wherein the diol residue is a glycol.

50. The polyester composition of claim 40 wherein the diol residue is selected from the group consisting of residues of ethylene glycol, 1,4-cyclohexanedimethanol, 1,2-propanediol, 1,3-propanediol, 1,4-butanediol, 2,2-dimethyl-1,3-propanediol, 1,6-hexanediol, 1,2-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cyclohexanedimethanol, 1,3-cyclohexanedimethanol, X,8-bis(hydroxymethyl)tricyclo-[5.2.1.0]-decane wherein X represents 3, 4, or 5; diols containing one or more oxygen atoms in the chain and mixtures thereof.

51. The polyester composition of claim 40 wherein the diacid residue comprises a component selected from the groups consisting of residues of terephthalic acid, naphthalene dicarboxylic acid, isophthalic acid, 1,4-cyclohexanedicarboxylic acid, 1,3-cyclohexanedicarboxylic acid, succinic acid, glutaric acid, adipic acid, sebacic acid, 1,12-dodecanedioic acid, and esters thereof, and mixtures thereof.

52. The polyester composition of claim 40 wherein the molar ratio of the diol residues to the diacid residues is from about 0.5 to about 4.

53. The polyester composition of claim 40 having less than about 20 meq/g of carboxyl ends.

54. The polyester composition of claim 40 wherein the antimony atoms are present in an amount from about 20 to about 500 ppm.

55. The polyester composition of claim 40 wherein the phosphorus atoms are present in an amount from about 10 to about 200 ppm.

56. The polyester composition of claim 40, wherein the amount of titanium metal is 0.0 ppm.

57. The polyester composition of claim 40, further comprising black iron oxide.

58. The polyester composition of claim 57, wherein the amount of black iron oxide ranges from 1 ppm to 10 ppm.